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Docket Management System
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Reference: **Docket Number USCG-2001-10163** Federal Requirements for Propeller Injury Avoidance

Dear Sirs:

Thank you for the opportunity to comment on the December 10, 2001 Notice of Proposed Rulemaking published in the Federal Register Volume 66 Number 237, pages 63645-63650.

Lake Powell Resorts & Marinas is a concessioner of the National Park Service at Glen Canyon National Recreation Area. As such, we operate all five marinas on Lake Powell in Utah and Arizona.

Lake Powell Resorts & Marinas provides almost 400 rental houseboats on Lake Powell as well as a variety of other types of rental craft. We also provide storage space for over 3,000 privately owned boats, many of which are houseboats. We have no reports of any propeller strike injuries associated with our rental houseboats

We support and implement meaningful and proven measures to enhance the boating safety of our boat rental customers as well as private boaters.

Our Public Comment with regard to the Proposed Rule includes the following comments pertaining to specific sections of the Notice:

Summary Position

Lake Powell Resorts & Marinas offers these preliminary comments to clarify our overall position:

- The specific interventions are not proven to successfully prevent injury, standards have not been developed against which the performance of the interventions can be measured, and the interventions are not UL Marine-Listed.
- We consider the provisions of this proposed rule require "substantial alteration" of existing vessels both physically and in terms of performance, safety and reliability.
- We believe accident statistics do not support the need for this proposed rule.
- We are opposed to houseboat owners being subject to the provisions of this proposed rule.
- We are opposed to propeller guards and the specified alternative interventions.
- The alternative interventions are not congruent with the hazard and these interventions do not aggregate to the intended protection.
- There is too much credence put into mechanical corrections, and without a strong educational component, safety levels will not be achieved.
- The cost associated with the purchase, installation, and operation of the safety devices described in this proposed rule is understated and misleading.
- We question the ability of houseboat owners to comply with the proposed rules with respect to the lack of definitions or performance characteristics provided.
- We question whether the law (46 U.S.C. § 4302) has been followed in developing this proposed rule, i.e.- the requirements to be met when prescribing regulations.

Background and Purpose

The Coast Guard noted of prior public comment that none of it contained information sufficient to support proposing requirements for manufacturers of new recreational boats.

- We recognize that manufacturers are not part of the regulated community under this proposed rule that affects only owners and operators of monohull houseboats.

  - The Coast Guard should not use the same insufficient information when prescribing this rule affecting boat owners and operators (existing boats).

- The Coast Guard should not use the same insufficient information while developing future rulemaking projects mentioned in this Notice.

The Coast Guard's Boating Safety Circular #76 titled "Preventing Propeller and Boat Strike Accidents" states "Operator inexperience, incompetence, negligence, and intoxification are significant contributing factors in reported boat and propeller strikes."

- We question whether the proposed interventions would have a corrective influence in preventing propeller strike injuries considering the significant factors stated above.

- We agree with the Coast Guard with regard to the factors of inexperience, incompetence, negligence, and intoxification.

- We question whether houseboat owners have been represented in previous public comment periods to the extent that we believe houseboat owners do not consider propeller strikes to be a significant hazard (and are not likely to comment). We note with interest that public comment posted to the Docket (to date) in support of this rule does not include any houseboat owners or rental operators.

- Enforcement agencies at Lake Powell do not consider propeller strikes to be a "significant hazard", including:

  - National Park Service
  - Utah State Parks
  - Coconino County Sheriff

- The National Traffic Safety Board does not consider propeller strikes to be a significant hazard and propeller related injury is not included on the NTSB "Most Wanted List".

Discussion of Proposed Rule

We question whether the law (46 U.S.C. Chapter 43) has been followed in developing this proposed rule:

- The authority to prescribe regulations establishing minimum safety standards also requires establishing procedures and tests to measure conformance with those standards, with each standard-

  - meeting the need for recreational boating safety; and
  - being stated in terms of performance.

- We question whether the requirements stated above have been fully met.

- The law (46 U.S.C. § 4302) requires that the need for and the extent to which the regulations will contribute to recreational vessel safety be considered, and that relevant available recreational vessel safety standards, statistics and data, including public and private research, development, testing, and evaluation be considered.

  - The statistics do not show a need for the proposed rule.
  - The extent of effectiveness of the proposed interventions has not been thoroughly researched, tested, or evaluated. The 1997 and 1998 Marine Technical Society reports approved by the Chief of Boating Safety expressed the views of the authors and did not establish real-life feasibility or effectiveness.
  - Industry safety standards for the proposed interventions do not exist for study and comparison nor has the Coast Guard developed, provided, or described a level of performance against which the proposed interventions can be measured.

- The law (46 U.S.C. § 4302) states a regulation can not compel substantive alteration of a recreational vessel or item of associated equipment that is in existence. We consider the proposed interventions to constitute "substantial alteration" with regard to the addition or modification of the vessel or associated equipment, especially with consideration to the lack of vessel or engine manufacturer approval, engineering, or guidance.

  - The Coast Guard states in this Notice, they consider one of the alternative avoidance measures to be "cost-prohibitive" for private boat owners (the emergency ignition cut-off switch). We suggest that any cost-prohibitive item constitutes substantial alteration.
  - The Coast Guard considers the emergency ignition cut-off switch to cost $40.00 plus installation. The propeller guard, which costs far greater and has far more adverse effect on the vessel operation, should also be considered a "substantial alteration".

- The law (46 U.S.C. § 4302) may require compliance or performance to avoid a "substantial risk" of personal injury to the public. Without a "substantial risk" established, the alterations of an existing vessel prescribed by this proposed rule are prohibited.

  - We question that a substantial risk has been identified when considering accident statistics and the incidence of propeller strikes.

The Chief, Recreational Boating Product Assurance Division (USCG, G-OPB-3) explained to the National Boating Safety Advisory Council (Council) October 29, 2001 the requirements, limitations, and statutory authority under Title 46 U.S.C. Chapter 43

when prescribing regulations. Without regard to these requirements, the Council and Coast Guard have recommended and promulgated this rulemaking.

Benefits of Proposed Rule

The Coast Guard states in this section of the Notice "This proposed rule is appropriate because the Boating Accident Reporting Database (BARD) shows that the number of injuries and fatalities reported during calendar years 1990 through 1999 occurred at a chronic rate."

- The Coast Guard's report "Boating Statistics – 2000" shows that from 1990 to 2000, the number of fatalities DECREASED from 7.8 deaths per 100,000 boats in 1990 to 5.5 deaths per 100,000 boats in 2000.

- This represents a significant DECREASE in deaths over the eleven-year period. This documented increase in safety is even more significant when considering the growing congestion of our waterways.

- We question the concept that propeller strikes can be described as "chronic".

The Coast Guard states in this section of the Notice "BARD data for the same period revealed a total of 18 injuries and 2 fatalities involving non-planing recreational houseboats. The number of injuries to be prevented by this rule may be greatly understated since many boaters are unaware of the requirements to report accidents."

- The Coast Guard stated for the Council April 22, 2001 "The Coast Guard does assume that the more serious an accident is, the more likely the accident will be reported. Therefore, we assume almost all fatal accidents to be included in the reporting database."

- Since the Coast Guard states in the Notice that they "...assume the eighteen injuries to be severe...". We consider propeller injuries to be accurately reported.

- We question whether the number of injuries to be prevented is understated.

The Coast Guard states in this section of the Notice "The Coast Guard expects that this rule would reduce the number of people who are killed or injured due to a propeller strike involving a non-planing recreational houseboat."

- We question the effectiveness of the proposed rule, especially in light of the undefined and largely untested proposed interventions.

- The Coast Guard states in the Notice that 2 fatalities occurred involving non-planing recreational houseboats between the years 1990 and 1999. BARD data (from USCG COMDTPUB P16754.14 "Boating Statistics – 2000") shows 8,097 boating deaths for the same period.

  - This proposed regulation is intended to prevent (if 100% successful) only .024% of boating deaths based on historical data.
  - We consider this proposed regulation to be wasteful of Coast Guard, industry, and consumer resources.

- The Council recognized the decreasing incidence of propeller inflicted injuries and death and the BARD data supports the overall decrease over the past eleven years.

- The Council's subcommittee reported April 22, 2001 with their Project Alternatives-

  - The subcommittee stated "Requiring installation of propeller guards on these types of vessels would address only a small part of the problem identified".
  - In other words, this proposed rule would only address a small part of a small problem. The Council and Coast Guard rejected this alternative.

Costs of Proposed Rule

The Coast Guard states in this section of the Notice "...the maximum cost is based on installation of a propeller guard, which we estimate to be $300 (self-installed)." The Coast Guard alternatively estimates the cost of the "swim ladder interlock" to be $100.00 (plus installation costs), a "clear visibility aft device" to be $20.00 (self-installed), and an "ignition cut-off switch" to cost $40.00 (plus installation).

- The cost described in the Notice associated with the purchase and installation of the proposed interventions is understated and misleading.

- We have experience in the purchase, installation, and operation of propeller guards on our rental houseboats. We have pro-actively worked with a variety of manufacturers in evaluating their claims by purchasing and using these devices in real-life circumstances.

- The cost of "propeller guards" retrofitted onto a 61-ft Sumerset rental houseboat (monohull) powered by two 115 hp Mercury outboard engines included (March 2001):

  - SwimGuard propeller guard by MariTech Industries (formerly Propeller Safety Technologies)- 333.50 x 2 $667.00

- Labor per hour 69.00 x 1 $69.00
- A private boater would have incurred an additional haul and launch fee of $976.00 at established local rates ($16.00 per foot).
- This cost far exceeds the Coast Guard estimate of $300.00.

➢ The cost of a "swim ladder interlock device" retrofitted onto a 61-ft Sumerset rental houseboat (monohull) powered by two 115 hp Mercury outboard engines included (March 2001):

- Marine Safety System (formerly the Swimmer Safety System) by MariTech Industries (formerly Propeller Safety Technologies)- 68.60 x 2 $137.20
- Labor per hour 69.00 x 3 $207.00
- A private boater would have incurred an additional haul and launch fee of $976.00 at established local rates ($16.00 per foot).
- This far exceeds the Coast Guard estimate of $100.00.

➢ The cost of an "ignition cut-off switch" retrofitted onto a 61-ft Sumerset rental houseboat powered by two 115 hp Mercury outboard engines with upper and lower helm stations includes:

- Mercury part #87-814324B2 Dual Engine Kill Switch Kit 66.75 x 2 $133.50
- Labor per hour 69.00 x 2 $138.00
- This far exceeds the Coast Guard estimate of $40.00.

➢ The cost of a "clear visibility aft device" is assumed to be a mirror based on the Coast Guard's estimated cost of $20.00. In pricing various convex-style safety mirrors that *may* allow a boat operator (at the lower helm position) see an area somewhat behind the houseboat, we found prices to be as follows:

- W.W. Grainger, Inc. #1M802 12" x 18" convex safety mirror $64.35
- W.W. Grainger, Inc. #1M800 18" x 26" convex safety mirror $109.60
- W.W. Grainger, Inc. #6AR72 12" diameter convex safety mirror $41.70
- W.W. Grainger, Inc. #2BC95 18" diameter convex safety mirror $55.25
  (Not including taxes, shipping, fabrication, or labor charges)
- This far exceeds the Coast Guard estimate of $20.00.

➢ A 7" x 9" rear view mirror available for $20.00 will not enable a houseboat operator at the (lower) helm to achieve effective visibility in the vicinity of the propellers.

- The Council's subcommittee estimated a cost of $500 - $1,000 to boat owners to implement the "clear vision aft" intervention. The subcommittee considered this to include the purchase and installation of a video camera and television monitor.

The Coast Guard has not considered the significant costs associated with the operation and maintenance of the safety devices described in this proposed rule.

Operation and maintenance costs must be considered and not just the initial costs to purchase and install the proposed devices. These interventions are not a "buy it, install it, and forget about it" issue. Rather, they will require ongoing attention, maintenance, and replacement. Based on our experience, we question the feasibility of operating a houseboat equipped with a propeller guard or swim ladder interlock.

- The swim ladder interlock device we placed into service included a surface-mounted, fragile magnetic switch subject to physical damage. It was damaged soon after installation, rendering the system inoperable. The "Swimmer Safety System" was removed from the houseboat and discarded.

  - Loss- $137.20 +

- We most recently installed propeller guards onto a variety of rental houseboats beginning March 15, 2001. Due to the design, we first had to locate a houseboat that still retained the skeg (fin) on the lower gearcase. (Most of our rental boat engines have the skeg knocked off during the first few rentals.) The propeller guard we tested required an intact gearcase featuring a skeg, a limiting factor.

- Our first case of failure occurred by May 2, 2001 after a total of no more than three rentals (< 21 days of operation). The propeller guards, retrofitted onto 115 hp Mercury outboard engines powering a 61-ft Sumerset monohull houseboat, failed due to cracked welds on the attachment brackets supplied by MariTech Industries.

- We had to haul and launch the houseboat in order to re-weld, modify, and strengthen the guard's structure. Loss of rental income is $1,022.90 per day for this class of rental houseboat. However, beyond the loss of rental income was the disappointment of the customer in losing a valuable portion of vacation time.

  - Remove, repair, and reinstall propeller guards, labor

Labor per hour	69.00	x 2	$138.00.
Loss of revenue per day	1,022.90	x 1	$1,022.90

  - A private boater would have incurred an additional haul and launch fee of $976.00 at established local rates ($16.00 per foot).

- On May 10, 2001 we installed the propeller guards onto 60 hp Mercury outboard engines powering a 52-ft Boatel pontoon (catamaran) style houseboat. After the fourth rental (approximately June 1, 2001), the rental operator grounded the houseboat. The propeller guards collapsed into the rotating propellers. This caused the gearcases to fail, completely incapacitating the houseboat, requiring a tow back to the marina, refund of rental time, haul/block/launch, loss of the propeller guards, and replacement of the gearcases and propellers. The operational cost of implementing the propeller guard intervention after these four rentals included:

• Tow per hour	84.50	x 2	$169.00
• Rental refund per day	710.20	x 1	$710.20
• Propeller guards	333.50	x 2	$667.00
• Propellers, Mercury #48-77338 14" x 11" aluminum 3-blade	155.00	x 2	$310.00
• Gearcases, Mercury #667-9011G45	2,470.55	x 2	$4941.10
• Labor per hour	69.00	x 3	$207.00

  - A private boater would have incurred an additional haul and launch fee of $728.00 at established local rates ($14.00 per foot for this size vessel).

- We experience approximately 4,000 propeller failures annually on our rental boats due to impact.

  - Propeller damage due to groundings or other causes do not usually incapacitate a houseboat.
  - We provide spare propellers and instructions for rental customers to replace damaged propellers.
  - The failure of a propeller guard has catastrophic collateral damage to the propulsion unit.
  - When a houseboat becomes inoperable due to a failed propeller guard, a potentially greater safety hazard is presented.

- If we assume that each event that would normally damage propellers results in >$6,000.00 worth of damage the operating cost is astronomical. Our experience and operational costs noted above do not include:

  - The 3%+ decrease in vessel performance (equates to an additional 90,000 gals of fuel consumed on Lake Powell by rental houseboats annually);
  - Denial of warranty coverage by the engine manufacturer in the event a failure is precipitated by the propeller guard (overheating, cavitation or ventilation, steering or tilting interference, or other).
  - Increased potential for collision resulting from the documented decrease in stopping ability and steering authority (helm response).

The Coast Guard states in this section of the Notice "We estimate that the costs to the government would be minimal. The Coast Guard would have to expand its Boarding Officer training to include checking for the injury avoidance measures..."

- A Coast Guard Headquarters representative stated while addressing the Council that there are limited dollars and very many priorities (this was before September 11, 2001). He also summarized some of the guiding principals laid out by the Commandant including:
  - Being good stewards of the taxpayers dollars.
  - The importance of partnering and becoming more efficient in the face of limited resources.
- The Coast Guard has been stretched further by the events of September 11, 2001.
- Any increase in the Coast Guard's mission requirements and training requirements will cost more.
- This proposed rule does not support good stewardship of taxpayers' dollars with regard to a minimal and ineffective return on the investment made by the Coast Guard and the regulated community.
- We feel the Coast Guard could do more in partnering with affected parties (houseboat owners and rental operators) while working towards meaningful and proven methods of intervention.
- The Coast Guard's throughput, already compromised by budget restraints and staffing levels, will be further hampered by this unnecessary and unwarranted regulation.

Part 175 – Equipment Requirements

In this section of the Notice, the Coast Guard has provided proposed amendments to Title 33 CFR to include Part 175.3 Definitions.

The proposed definition of a "clear visibility aft device" refers to the operator's ability to see a swimmer aft of the vessel from the "...engine throttle control station."

- The Coast Guard has significantly neglected to establish tests or procedures to measure conformance with this proposed intervention, stated in terms of performance:

- A "clear visibility aft device" such as a $20.00 mirror or a $1,000 remote video monitor will not allow the operator to see aft of the vessel from each helm location.
- A swimmer directly aft of the vessel is sometimes 60 or more feet distant from the helm.
- The proposed definitions do not explain what field of view "aft of the vessel" (and with respect to the propeller location) is prescribed from the "engine throttle control station".

➢ Many current houseboats have large rear decks and integral swim platforms aft of the propeller. The propeller is normally three to six feet (or more) forward of the aftermost part of the vessel

- The proposed definitions do not explain when a swimmer "aft of the vessel" is considered "near a propeller" as in the example provided above.
- The proposed definitions do not explain what "near a propeller" means.

➢ The proposed "clear visibility aft device" will not allow the operator to determine the presence of a swimmer near a propeller.

- The proposed intervention is ineffective and a poor substitute for first-hand visual observation of the area aft of the vessel.
- A boat operator must look over the stern before starting ANY engine.
- Our rental customers are instructed to look first. In addition, appropriate warnings are posted at the helm, at the stern, and on the swim deck to reinforce safety instructions.

➢ The lack of an educational element in this proposed rule doesn't address parallel issues such as:

- Verifying and accounting for all persons on board;
- Going to the stern to inspect the bilge for gas fumes and vapors prior to start-up;
- Mitigation of potential carbon monoxide issues.

➢ The Coast Guard is misleading any boat owner and operator on the effectiveness of the purely physical interventions proposed in this Notice. Safety can not be "installed".

The proposed definition of a houseboat means (in part) "...a motorized vessel designed primarily with accommodation spaces..."

- The proposed definitions do not explain what features constitute a design with "primarily accommodation spaces".

The proposed definition of a houseboat means "...a motorized vessel... with little or no foredeck or cockpit."

- The proposed definitions do not explain how "little or no foredeck or cockpit" is measured.

  - Many recreational vessels provided for rent by Lake Powell Resorts & Marinas (that feature accommodation spaces) have foredecks measuring 140 square feet on a vessel with 216 square feet of accommodation space. Overall exterior deck space exceeds interior space, not counting the second deck.
  - Would a recreational vessel (featuring accommodation spaces) with a gunwale surrounding the deck be considered to have substantial or little cockpit?

The proposed definition of a houseboat continues with a description of "low freeboard".

- Freeboard is a relative matter and depends largely on the body of water, the type, style and usage of a vessel, and consideration of conditions normally encountered.

- The proposed definitions do not explain what is considered "low freeboard".

  - The proposed definitions do not explain if recreational vessels (featuring accommodation spaces) with 2 ½-ft or greater freeboard to the deck (in lieu of a gunwale) have high, normal, or low freeboard.
  - The proposed definitions do not explain if recreational vessels (featuring accommodation spaces) with gunwales (measuring freeboard to the top of the gunwale) are considered to have high or low freeboard.

The proposed definition of a houseboat ends by describing a "low length to beam ratio".

- The proposed definitions do not explain what a "low length to beam ratio" is.

  - A recreational vessel (featuring accommodation spaces) measuring 36-ft in length x 14-ft beam has a length to beam ratio of 2.57:1.
  - A recreational vessel (featuring accommodation spaces) measuring 61-ft length x 15-ft beam has a length to beam ratio greater than 4:1.

- Would an 85-ft x 16-ft houseboat with a length to beam ratio greater than 5.3:1 be considered to have a "low length to beam ratio"?
- Many runabout, deckboat, or cuddy cabin-style recreational vessels (that may or may not feature accommodation spaces) have a length to beam ratio measuring less than 2.3:1.

The proposed definition of an ignition cut-off switch refers to the operator moving away from the "...engine throttle control station."

➢ The Coast Guard has significantly neglected to establish tests or procedures to measure conformance with this proposed intervention, stated in terms of performance:

- Does the Coast Guard mean every helm position on board including the upper and lower helm, portable helm, or more?
- How far away from the helm does the operator need to move to interrupt the engine(s) ignition (what maximum or minimum length of the tether)?

➢ The proposed ignition cut-off switch intervention is not congruent with the perceived hazard.

➢ An ignition cut-off switch is very effective when used in small planing recreational vessels where the operator has a risk of ejection and subsequent boat and propeller strike due to the "circle of death" phenomenon associated with an unattended helm.

- An ignition cut-off switch does not assist a swimmer. It protects the person to whom it is tethered as well as any other occupants. Risk of the operator being ejected is very low on displacement speed vessels.
- Operators may use this device when underway (with no swimmers), but common practice (on small boats typically equipped) is to leave the switch "cap" and tether at the helm after shutting off the engine(s). The difference in cranking and running is measured in only a split second for a warmed-up engine.

The proposed definition of a non-planing vessel means "...a vessel with a hull that is designed to ride through the water at any speed."

➢ It is a well-known fact that displacement hulls are capable of substantial speeds depending on the propulsion power.

- Propeller guards have a severe detrimental effect on vessel performance of any recreational vessel capable of greater than approximately 5 miles per hour ("bollard" speed), especially with recreational vessels equipped with small diameter propellers.

- Advocates who cite the performance of tugboats equipped with ducted propellers or kort nozzles are not comparing the same attributes of a recreational vessel.

➢ Is a vessel featuring a planing hull, equipped with low propulsion power, which operates at a displacement speed regulated under this proposed rule?

➢ Is a vessel capable of reaching planing speed, but chosen to be operated at displacement speed, regulated under this proposed rule?

The proposed definition of a planing vessel means "...a vessel with a hull that is designed to ride on top of the water beyond a minimum speed."

➢ Is the proposed definition of a planing vessel dependent solely on the capabilities of the hull design or also a function of the installed propulsion power?

- Too many "cross-over" designs exist that have infinite performance characteristics with consideration to available power options, loading, level of trim, and other variables.
- Who determines where a "semi-planing hull" is regulated (below or above "hump" speed)?

The proposed definition of a "swim ladder interlock" refers to interrupting the engine ignition "...when a swim ladder is moved into position near the propeller."

➢ The Coast Guard has neglected to establish tests or procedures to measure conformance with this proposed intervention, stated in terms of performance.

➢ The proposed definitions do not explain what "near a propeller" means.

- Some boats have no swim ladder provided at the rear of the boat.
- Some owners may remove a ladder located at the rear of the boat.
- The proposed definitions do not explain if a ladder located on the side of the boat is considered a "swim ladder".
- The proposed definitions do not explain if a ladder located on the front of the boat is considered a "swim ladder".
- The proposed definitions do not explain how a boat featuring pocket steps welded into the hull would comply.
- The proposed definitions do not explain how the device protects when deploying a portable swim ladder.
- The proposed definitions do not explain which engine(s) the device should prevent starting.

- The proposed definitions do not explain how the device protects a swimmer approaching the stern from the water with the engines running and the swim ladder not deployed (if so equipped).
- The proposed definitions do not explain if the device must be manufactured or if it can be designed, built, and installed by the owner.

➢ The proposed "swim ladder interlock" device offers a false sense of security and has the potential to create a significant safety hazard with collisions in the event a swim ladder is deployed inadvertently (shutting off the engines) while underway or when maneuvering.

➢ The swim ladder interlock is not an effective physical barrier or intervention even though it is installed and functioning as described in this proposed rule. Currently the sole manufacturer, MariTech Industries provides an over-ride mode that defeats the system. Houseboat operators will leave the system defeated after experiencing nuisance shut-downs of propulsion engines.

➢ Rulemaking that requires a particular intervention device is inappropriate where only one such device is currently available commercially, thus advancing the financial benefits of a rule to the manufacturer (MariTech Industries).

- A specific technology should not be regulated.

➢ We consider a "swim ladder interlock" to constitute a "substantial alteration" of an existing vessel, that is ineffective in controlling a hazard which has been described as "minimal".

The proposed rule offers no definition of a "propeller guard".

➢ The Coast Guard has significantly neglected to establish tests or procedures to measure conformance with this proposed intervention, stated in terms of performance:

- The proposed definitions do not explain what the required minimum product standards are (dimensions, composition, durability, or other details).
- The proposed definitions do not explain what the required performance standards are (safety requirements or levels against which the function of the product can be evaluated).

➢ Propeller guards have a severe detrimental effect on engine performance parameters such as engine speed (RPM), propeller ventilation, propeller cavitation, and overheating.

- Our experience using propeller guards includes a lack of reverse thrust and turning ability due to propeller ventilation, creating another potential severe safety hazard.

➢ We question whether a propeller guard will offer protection at higher displacement speeds (as low as 10-12 mph).

- We question the ability of the object being hit to be moved out of the way by the guard. The human body (with a density almost equal to that of water) cannot accelerate fast enough when in the water without being crushed or causing the guard to fail materially.

➢ The Coast Guard, under the section "Costs of Proposed Rule", notes they consider the propeller guard "self-installed".

- Can the owner manufacture the device, also? (The same question could be asked of the other devices.)
- We believe that in the absence of engine or boat manufacturer factory-approved devices (OEM), the owner (installer) becomes the "manufacturer" and will be held responsible for the performance of the device (or lack of performance) once the owner installs the propeller guard.
- Many "propeller guards" perform just as the term implies. They protect the propeller. The manufacturers of these propeller guards make no claims as to personal safety. Are these still considered propeller guards for the purpose of this proposed rule?
- What defines a "propeller guard"? Does the manufacturer have to market it as a personal safety device or merely as a propeller guard?
- A full keel with a bar or "guard" under the propeller is a "propeller guard".
- A nozzle-type ring mounted around the propeller is a "propeller guard". The possibility of entrapment has been shown to result in increased injury.
- Various cage-type devices are "propeller guards". How small must the cage, grid, or screen be to keep hair out of the propeller?
- How durable must the device be with regard to human impact or contact? What force must it be capable of resisting?
- Can the ends or front of the device be completely open? What plane or degree of approach must the device protect from, if not 360 degrees?

➢ The Boating Safety Grant which resulted in the 1997 and 1998 reports by Profs. Tennant and Milligan provide the detail of various types of aftermarket propeller guards available commercially at that time for a limited range of application. As stated in the reports, the presence of a ring- or cage-type propeller guard increases the projected area of the drive assembly and thus the probability of a collision with an object (or person) in the water.

- Their test houseboat included ONLY one "typical lake type houseboat" 55 feet in length with a 15-foot beam powered by a single conventional stern drive of 130 hp. This catamaran (pontoon) houseboat was hardly representative of the realm of available houseboats types and designs and is not representative of the "monohull houseboats" to which this proposed rule applies.

➢ Propeller guards, as required by this proposed rule, will offer no increase in boating safety and provide a false sense of security that is fostered by the lack of knowledge and understanding of fundamental practices of common sense.

As applicable to this proposed rule, there is no definition given of "transom" with respect to "...an exposed propeller located aft of the transom."

➢ The definition of "transom" found at Part 183.3 does not describe the aftermost structure of the majority of monohull houseboats, not including removable items.

- The term "stern" or "aftermost" would be a clearer description of where a propeller is or is not located.
- The aftermost point of admeasurement would also provide an adequate description of where a propeller is or is not located.
- Under the applicability of this proposed rule (175.301), a propeller trimmed "in", or "under" to a point where it is FORWARD of a vertical line intersecting the transom would represent a houseboat NOT subject to this proposed rule. With an outboard engine, this is easily accomplished by mounting the engine using "transom wedges".
- What is considered "an exposed propeller"?
- Is a propeller located 3 feet forward of (and completely covered by) the aftermost part of the integral, manufactured structure of the boat considered to be "exposed"?

As applicable to this proposed rule, there is no definition given of "monohull" with respect to the applicability of this proposed rule.

➢ The definition of "monohull" found at Part 183.3 exempts catamaran, trimaran, and pontoon hulls.

- How would certain "cathedral" style hull forms be regulated?

➢ "Monohull houseboats" are safer than other hull forms.

- The hull and swim platform design common to monohull houseboats provides a high degree of safety with regard to restricting access to the propeller(s).

Suggested Alternative Measures:

- We support a grandfather clause for existing houseboats in accordance with 46 U.S.C. § 4302(c)(3).
- We support mandatory state requirements for boater education, licensing, or recognition of competency.
- We support proven and meaningful interventions such as education, signage, swim ladder placement, and start-in-gear protection.
- We support partnering with the boating community, the boating industry, agencies, and States.
- We support outreach programs that inform, educate, inspect, advise, enforce, and assist the boating public (including houseboat owners).

Education-

- We believe that boater education offers the greatest benefits in preventing propeller strikes.
  - Boaters must be made aware of the consequences of their actions. Propellers (guarded or unguarded) offer an open and obvious danger. As a parallel example, it is through education that we learn not to sit in the garage with the car running.
  - Implementation of the purely mechanical proposed interventions (of questionable effectiveness) will only confuse uneducated boaters while creating other potential hazards. Safety can not be "installed".

- Education and awareness has the additional benefit of preventing many different types of boat-related injury and fatality throughout the realm of boating activities.
  - NBSAC, NASBLA, NTSB, State programs, Coast Guard, CG Auxiliary, U.S. Power Squadrons, and various organizations and associations have all publicly recognized the benefits of educational programs. Statistics show that education lowers accident rates.

- We suggest the Coast Guard incorporate an educational element into any boating safety rulemaking project. The rental industry has been VERY successful with education <u>when it is an element of the rental procedures</u>.
  - We require all rental customers be educated using audio/video, written, and verbal means that we provide preliminary to <u>any</u> rental, not just houseboats.
  - Propeller hazard awareness and avoidance is a part of our safety training.

- 15 minutes of instruction is not sufficient for a novice boater on any type watercraft.

➢ Mandatory education is also possible for houseboat owners and is consistent with many existing programs in place. In the absence of a state-mandated, NTSB-recognized program, the Coast Guard could require mandatory education for all boaters.

Cost-

➢ Cost of various educational programs varies depending on the length and content of the course. The cost of a recognized boating safety course is estimated not to exceed $50.00. Educational costs are not passed on to our rental customers.

Signage-

➢ Warning labels that warn of propeller hazards are effective and educational.

- Signage should be required, where none exist, that comply with ABYC Standard T-5 or ANSI Z-535.
- The signage message, size, placement, and viewing distance are part of a successful signage program.
- All boaters can effectively accomplish the application and placement of mandatory signs.
- Our signage program, developed by partnering with Mercury Marine, has proven very effective and educational. Our signage includes a description of the hazard severity and how to avoid the hazard.

Cost-

➢ $1.00 - $2.00 each, or $3.00 - $6.00 per boat

- We spend more per boat because we warn of additional potential hazards and how to avoid them.

Swim Ladder Placement-

➢ The American Boat & Yacht Council (ABYC) provides Technical Information Report H-41 "Reboarding Means, Ladders, Handholds, and Lifelines".

- We believe the Coast Guard could incorporate the recommendations made with respect to reboarding means on houseboats.

Cost-

- $50.00 - $220.00 for a fixed ladder; $100.00 for fixed ladder installation; $25.00 - $120.00 for a portable ladder (price estimates per the Council's Boat Occupant Protection Subcommittee).

- The cost and detail of installing a swim ladder most likely constitutes a "substantial alteration" to an existing vessel. New construction can accommodate a change in swim ladder location better than retrofits.

Partnering with Industry-

- Organizations, groups, agencies, and individuals already involved with boating safety issues should be allowed to continue programs and interventions in place, develop new programs and interventions, and involve boat owners in implementing successful and meaningful programs and interventions. Some of these organizations, groups, and agencies include:

  - Coast Guard
  - Coast Guard Auxiliary
  - National Association of State Boating Law Administrators
  - National Boating Safety Advisory Council
  - National Transportation Safety Board
  - National Marine Manufacturers Association
  - Marine Retailers Association of America
  - Houseboat Industry Association
  - State Agencies (Fish & Game, local law enforcement, State and County Parks & Recreation departments, others)
  - B.O.A.T. U.S.
  - National Safe Boating Council
  - National Safety Council
  - U.S. Power Squadrons
  - National Park Service
  - Local yacht clubs

Cost-

- The Coast Guard estimates the cost of implementing the measures required by this proposed rule at $12 to $30 million.

  - We estimate the cost of partnering to be less than this.
  - The benefits achieved through partnering would exceed the benefits that will be realized by implementing this proposed rule.

Outreach Programs-

- Outreach programs administered, funded, and implemented by partners such as described above inform, educate, inspect, advise, enforce, and assist the boating public (including houseboat owners).

  - Through partnering, the effectiveness of outreach programs is multiplied and results in an overall safer boating experience for all boaters.
  - Outreach programs specifically focusing on propeller hazards would prove more beneficial than passing a Final Rule trying to "install safety".

Cost-

- As above, the cost of outreach programs is estimated to be less than implementing this proposed rule. Through partnering, we feel the benefits achieved through outreach programs would exceed the benefits that will be realized by implementing this proposed rule.

Thank you for considering these comments in your decision-making process. Please feel free to contact me with any comments or questions at the telephone numbers or e-mail address noted below.

Yours Truly,

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